

*Violent Criminality:
“It’s all in your head”*

for the Board of Parole Hearings



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What do criminals look like?





**What do killers
look like?**





How about this?



Dorothea Puente

**What do sex
offenders look like?**



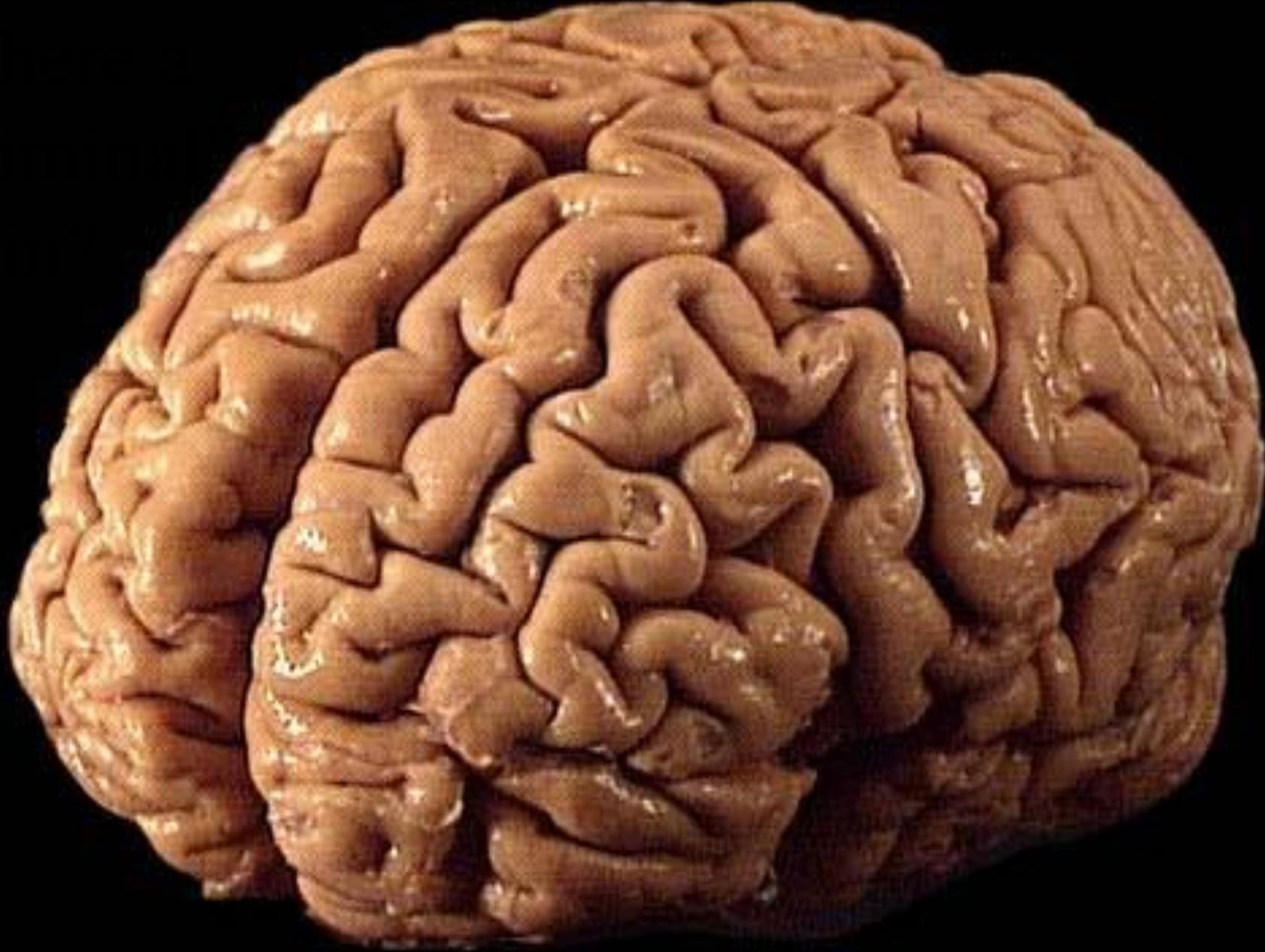
A photograph of Jared Fogle, a man with glasses and a blue shirt under a dark jacket, smiling while holding a very large sandwich. The sandwich is filled with meat, cheese, lettuce, tomatoes, and cucumbers. He is wearing clear plastic gloves. The background shows a kitchen or food service area with stainless steel surfaces and equipment.

Jared Fogle

“the younger the better”

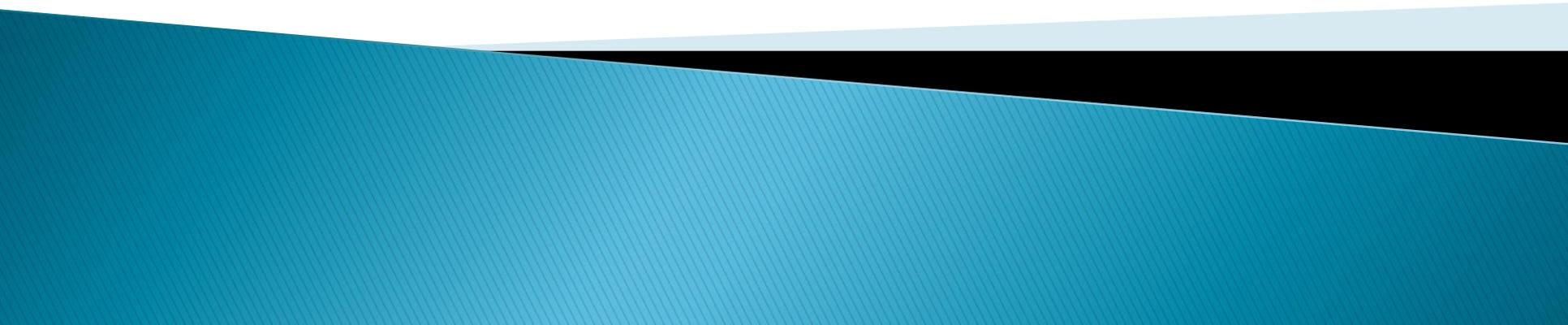
**What do the brains of
offenders look like?**





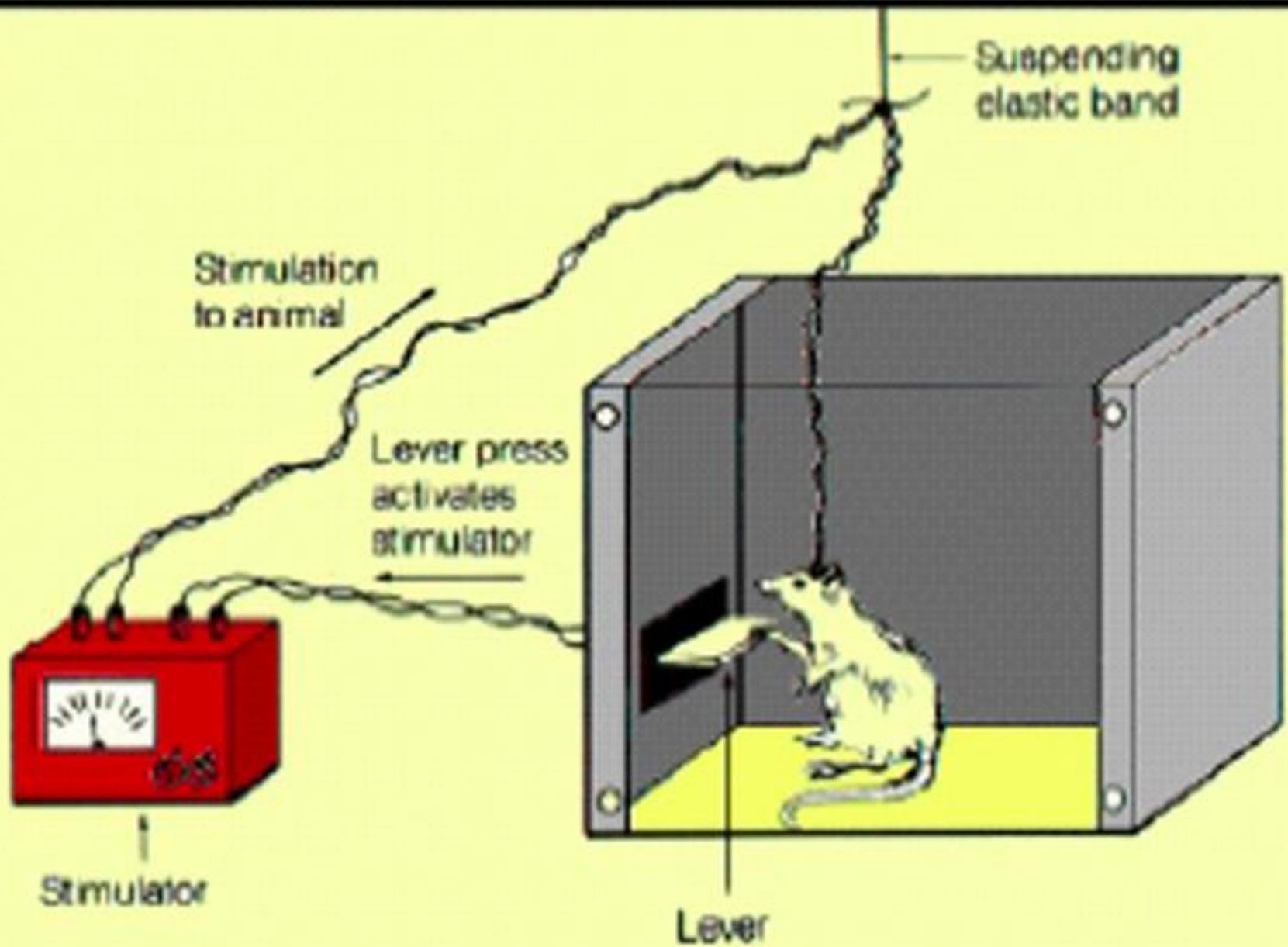
the brain on trial

Specific functions are associated with specific regions of the brain.



“Ben”

- ▶ lateral hypothalamus acts as a “pleasure center”
 - ▶ ventromedial hypothalamus acts as a “satiation center”
- 



Sustaining elastic band

Stimulation to animal

Lever press activates stimulator

Stimulator

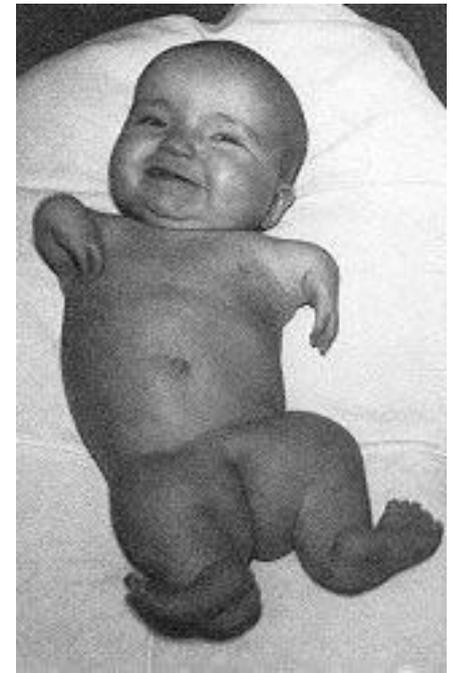
Lever

Toxic Environments



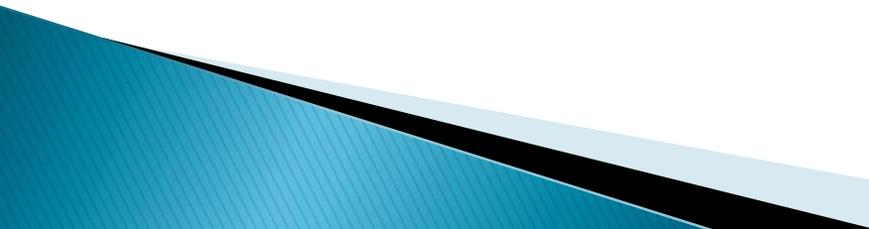
Thalidomide Case as a Model of Teratogenic Effects

- ▶ critical period is from the 35th to the 48th day after the last menstrual period
 - e.g., if 35 - 37 days: no ears
 - e.g., if 39 - 41 days: no arms
 - e.g., if 41 - 43 days: no uterus



This is the idea:

- ▶ The same teratogenic factors that produce physical birth defects also affect brain development at that same time.

-e.g., hyperactivity, impulsiveness, restlessness, inattentiveness
- 

Toxic Experiences



BRAIN FUNCTION/DYSFUNCTION

The developing brain is shaped by experience—including physical and psychological abuse, and neglect.



Bruce Perry



- ▶ Experience can change the mature brain - but experience during critical early periods (prenatal; early childhood) organizes brain systems.

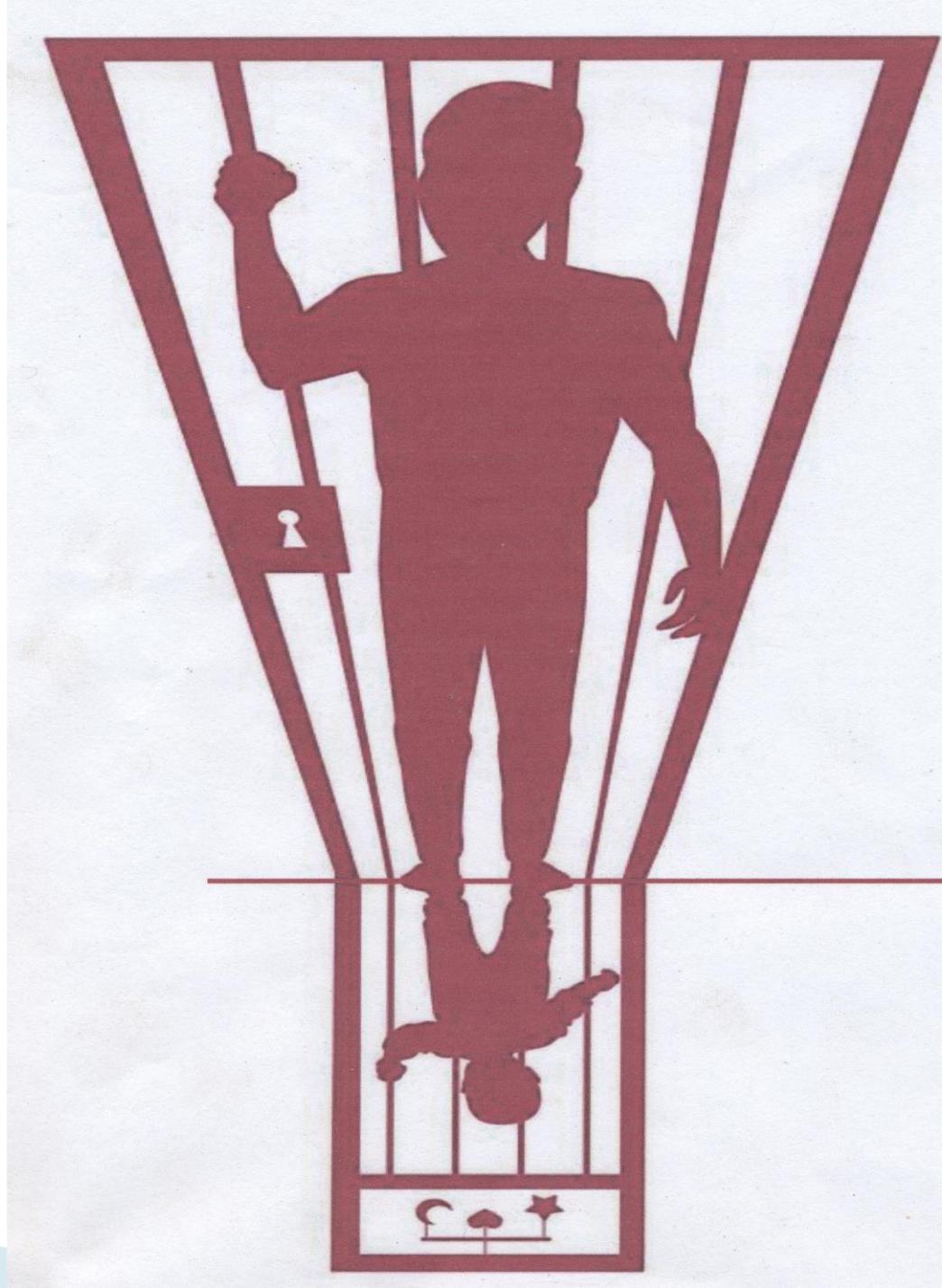
Trauma-informed Protocols

- ▶ e.g., effects of early childhood trauma might be misdiagnosed as an ADD.

Nicole Brown (pediatrician)

- ▶ distracted and disruptive behaviors that look like ADDs may instead be PTSD
 - e.g., impulsivity vs. a stress response in overdrive
 - e.g., inattention vs. hypervigilance to potential threats
- 

the first 33
months are
critical!



Violent behavior is the product of different factors interacting with each other.

- ▶ No ONE factor causes it.
 - (except some head injuries)

Psychology . . .

- ▶ is biology.

Silbersweig & Stern studies (1990s)

- using PET scans, examined brain activity of schizophrenic patients while hallucinating
 - found they are actually experiencing voices in the absence of external stimuli
- 

neurocriminology

- ▶ using neuroscience to understand criminal behavior

Consider pedophilia.

- pedophile \neq child molester

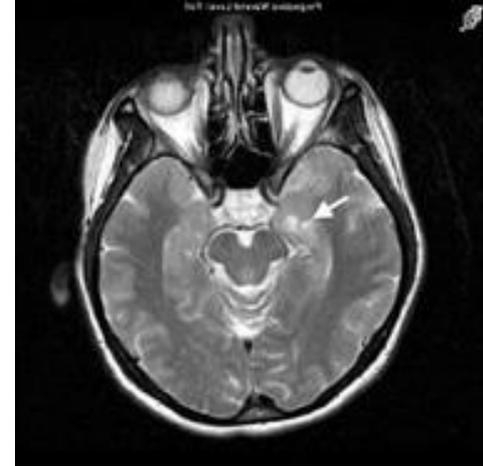
Klüver-Bucy syndrome

- ▶ Klüver & Bucy (1937)
 - bilateral anterior temporal lobectomy in male rhesus monkeys
- ➔ excessive orality, hyperphagia, distractibility, hypersexuality and change in sexual preference, loss of fearful responses . . .

In humans:

- ▶ full blown KBS - after bilateral temporal lobectomy to control epilepsy
- ▶ partial KBS - diverse disorders affecting temporal lobe (e.g., head trauma; Alzheimer's; unilateral temporal lobectomy)
 - most only have one or two features (b/c do not completely destroy anterior temporal regions)

Radiolab clip, “Blame”



- ▶ Kevin - case report
- ▶ hx: seizure focus in rt temporal lobe
 - (partial) rt anterior temporal lobectomy at 33
 - rare, slow-growing tumor
 - seizures returned
 - at 39, removed most of remaining temporal lobe

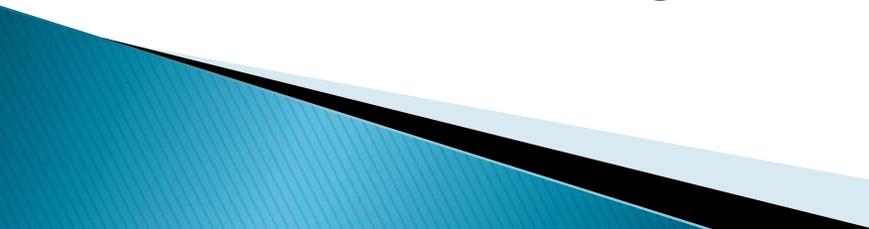
One month later:

- ▶ onset of dramatic behavioral changes: irritability++; hyperphagia (gained 3 pant sizes in 6 mos); hypersexuality
...

Homeland Security arrests Kevin in 2006 for downloading child pornography.

- ▶ prosecution asked for the max: 20yrs
- ▶ neurologist Orrin Devinsky testified about KBS
- ▶ judge's decision: 26 mos federal prison + 25 mos house arrest + 5 yrs supervision

But (again),

- ▶ most pedophiles develop urges early and without tumors, so ... ??
 - temporal lobe dysfunction appears to be involved in deviant sexual urges
- 

Sex Hormones

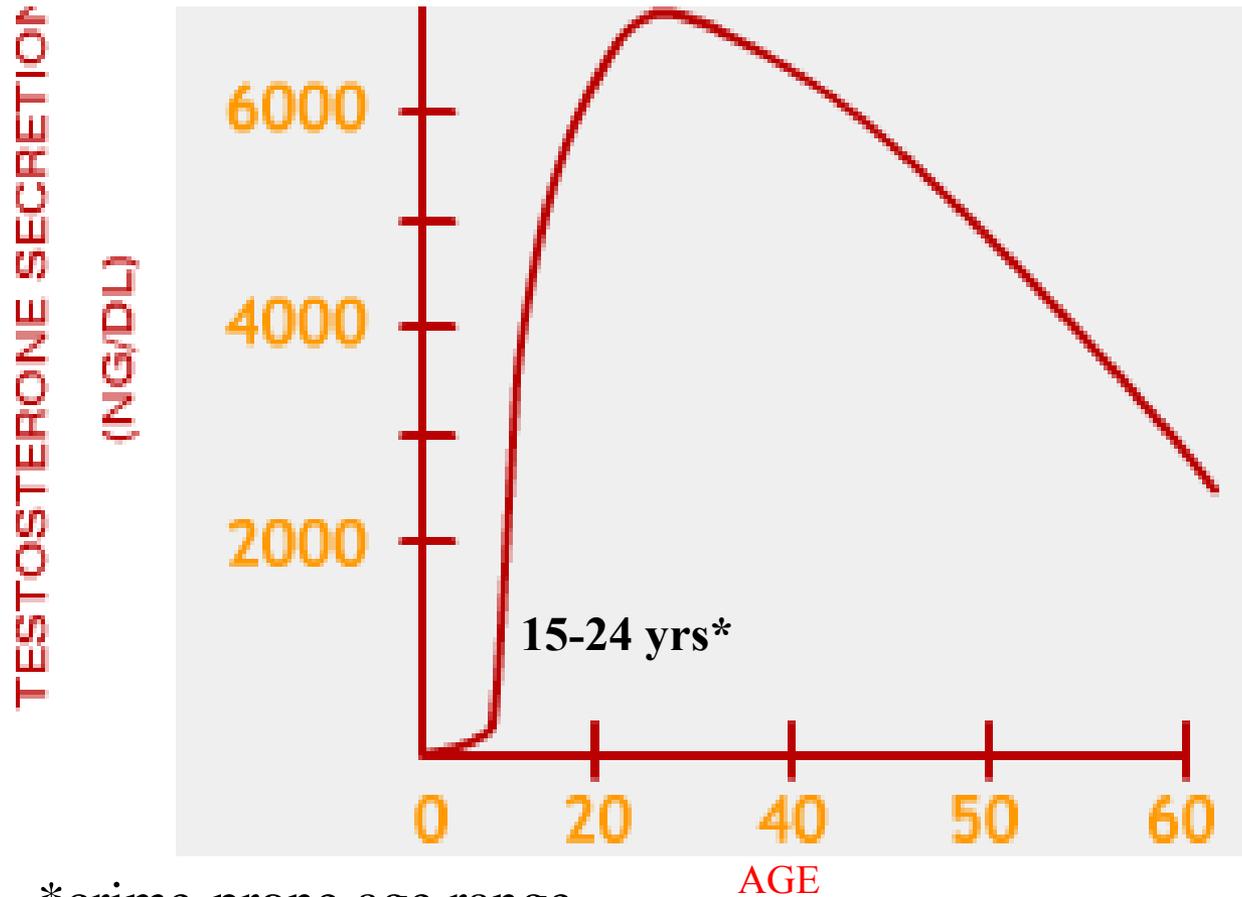
➤ e.g., testosterone

competitiveness

dominance

(aggression)

Circulating Testosterone Levels



*crime-prone age range

But it's complicated.

- ▶ Put 5 male monkeys in a large area together.
- ▶ Testosterone is **not causing** aggression; It is boosting aggression that is already there.

chronic violent offenders



Violent Behavior

▶ predatory

vs.

▶ impulsive

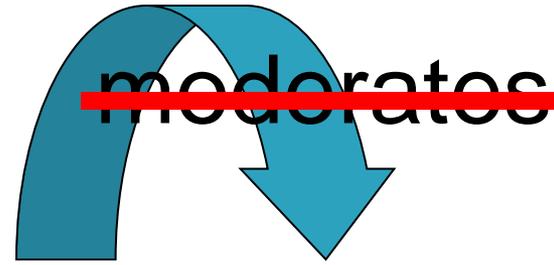
Neurological tests are revealing differences in the structure and function of the brains of chronic violent offenders. . .

. . . and differences in brains of impulsive vs. predatory offenders

underaroused

prefrontal cortex

[rational]

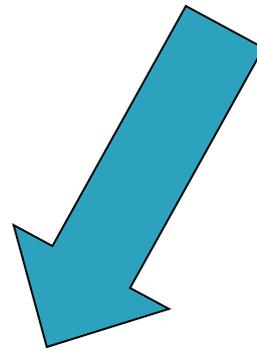


limbic system

(amygdala)

[emotional]

impulsive



~~controlled behavior~~

Pre-Frontal
Cortex

Limbic
System



Phineas Gage?

- ▶ 1848
- ▶ railroad worker



Severed connection
between Prefrontal
Cortex (rational
thinking) and Limbic
System (urges, drives,
emotions)



Daniel Tranel (2000)

- ▶ injuries to ventromedial PFC of “normal” people (by stroke, infection, gunshot)
 - antisocial and violent behavior; impulsive; reckless; remorseless. .

Robert Hare:

Typical Traits of Psychopaths*

- ▶ glib and superficial
- ▶ egocentric; feel superior
- ▶ lack remorse/guilt
- ▶ lack (emotional) empathy
- ▶ deceitful and manipulative
- ▶ shallow emotions
- ▶ impulsive
- ▶ irresponsible
- ▶ need for excitement . . .

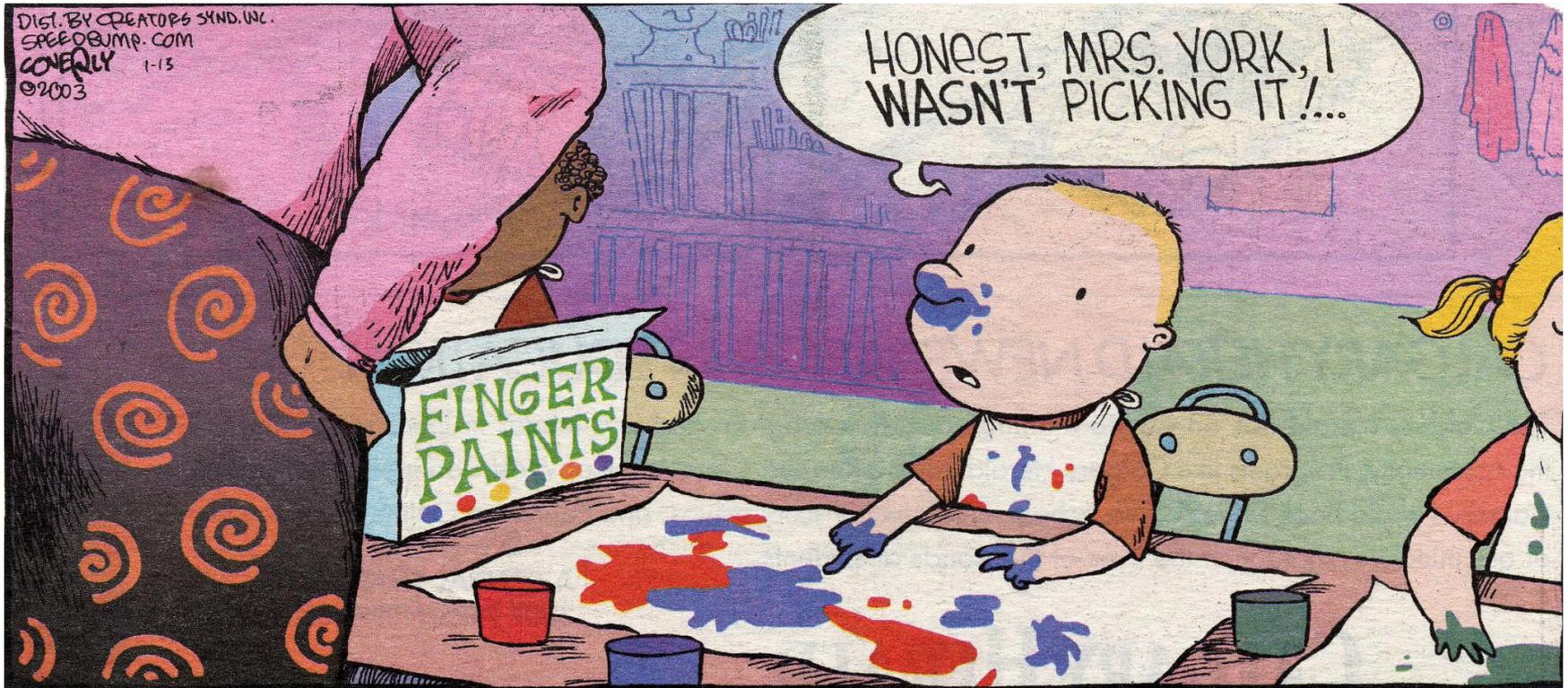
*Psychopaths exhibit almost all these traits.

Psychopathy

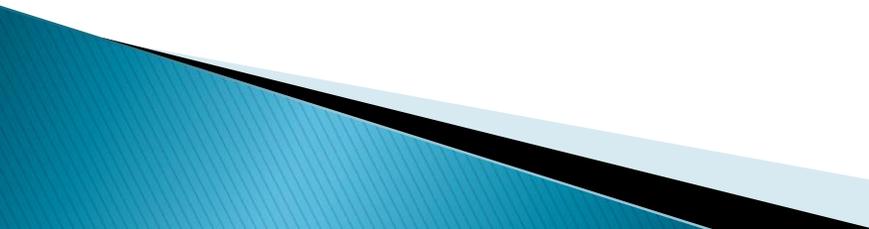
- ▶ personality disorder involving specific cognitive and emotional deficits
 - ▶ lifelong pattern of antisocial behavior with no remorse
- 

Many psychopaths do not become criminals per se (but can be equally exploitative, deceptive, and irresponsible).

a budding psychopath?



Brains of psychopaths:

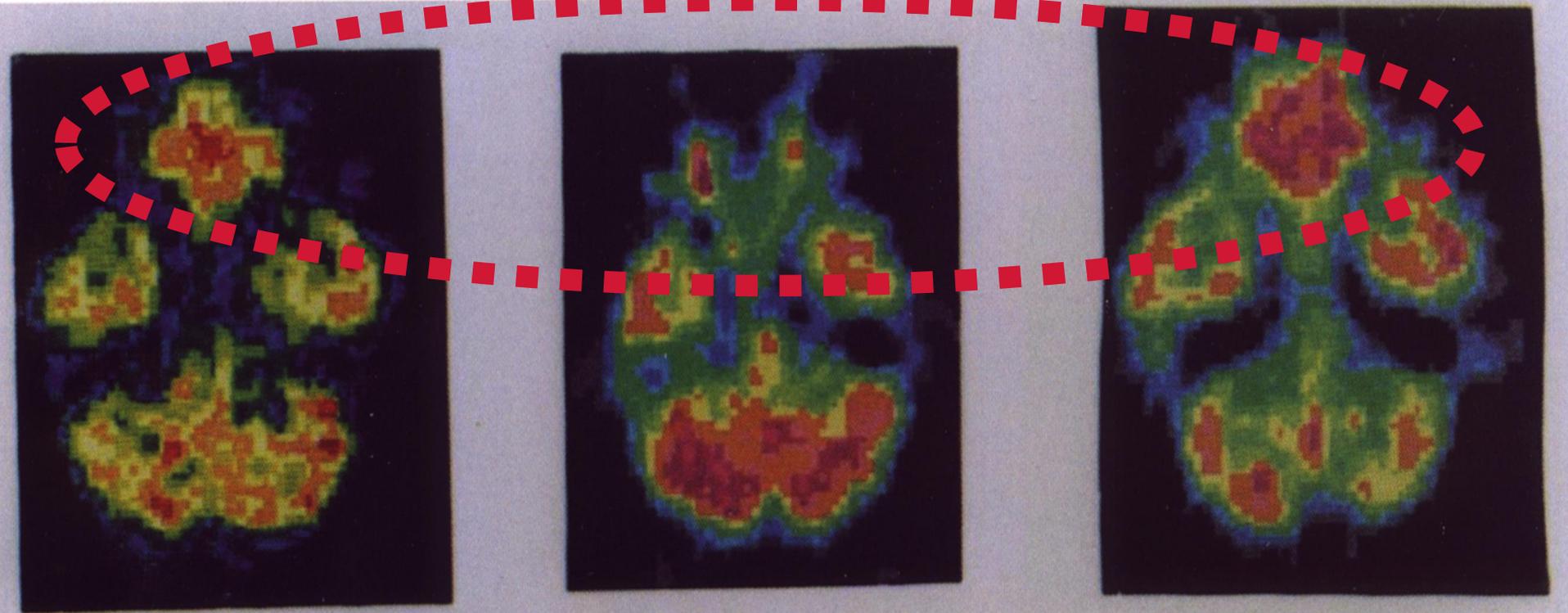
- ▶ various, specific combinations of structural abnormalities and functional deficits
 - ▶ e.g., lack conscience (no emotional empathy)
 - ▶ e.g., poor impulse control
- 



X bullying

Raine et al. (2000) -

- ▶ MRI study of 21 “psychopaths” (vs. controls)
- ▶ 11 % smaller volume of neurons in PFC (~ 2 tsp)



control

passion/impulsive
murderer

predatory
murderer

PET scans

Hare used functional brain scans:
Psychopaths and non-psychopaths
viewed neutral v. horrific pictures.



Unlike non-psychopaths . .

- ▶ psychopaths had very little activity in amygdala (similar to their responses to neutral pictures)

Yang, Schug, & Raine (2009)

- ▶ structural brain scans of 27 psychopaths (vs. controls)
 - ▶ psychopaths' amygdalae 18% smaller
- 

)



Raine – individuals with smaller amygdalae are 3X more likely to recidivate within 3 yrs post-release

▶ Psychopaths perform the lexical decision task differently.

▶ EEG

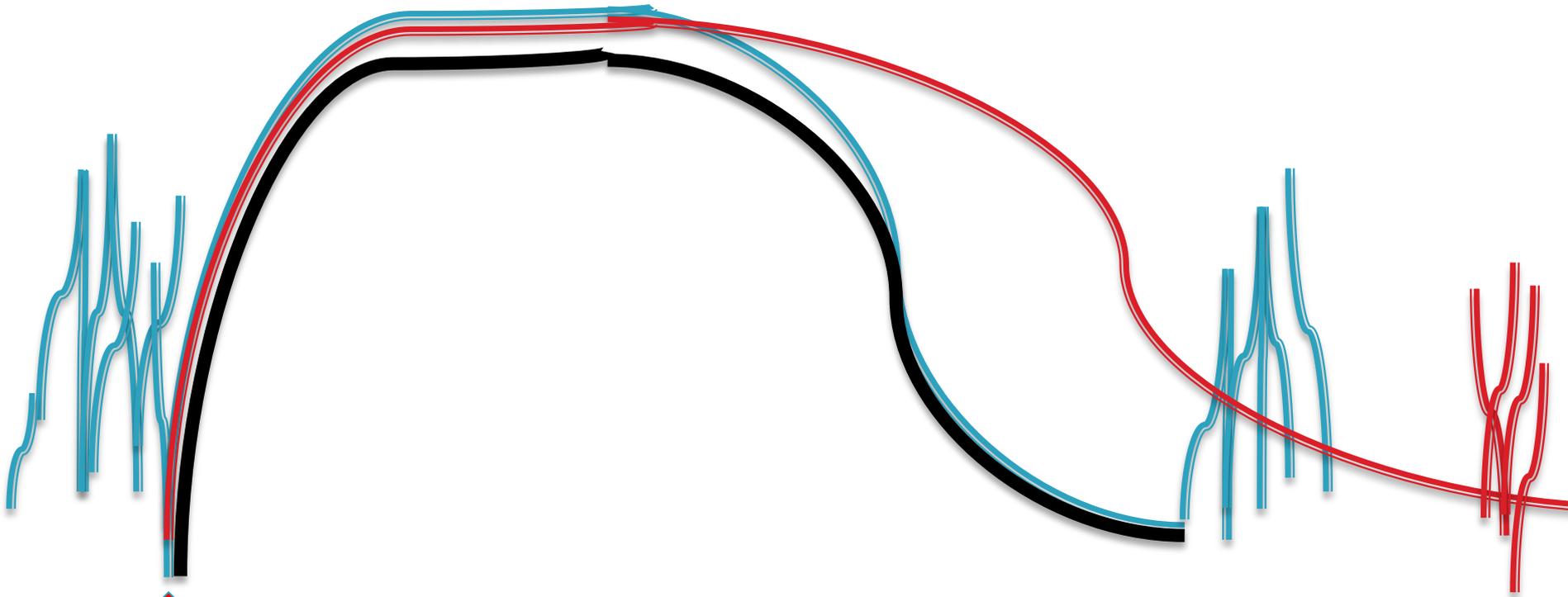
- **TREE**

- **TPSL**

- **BLOOD**

- process emotional words differently

Williamson, Harpur & Hare (1991)



tree

murder

Neurobiologically, the mechanisms that should impart emotion to thoughts and attitudes are not working properly.



They don't care because
they can't care.



Psychopaths as Offenders



Robert Hare's research suggests psychopaths constitute:

~ 1% of general population

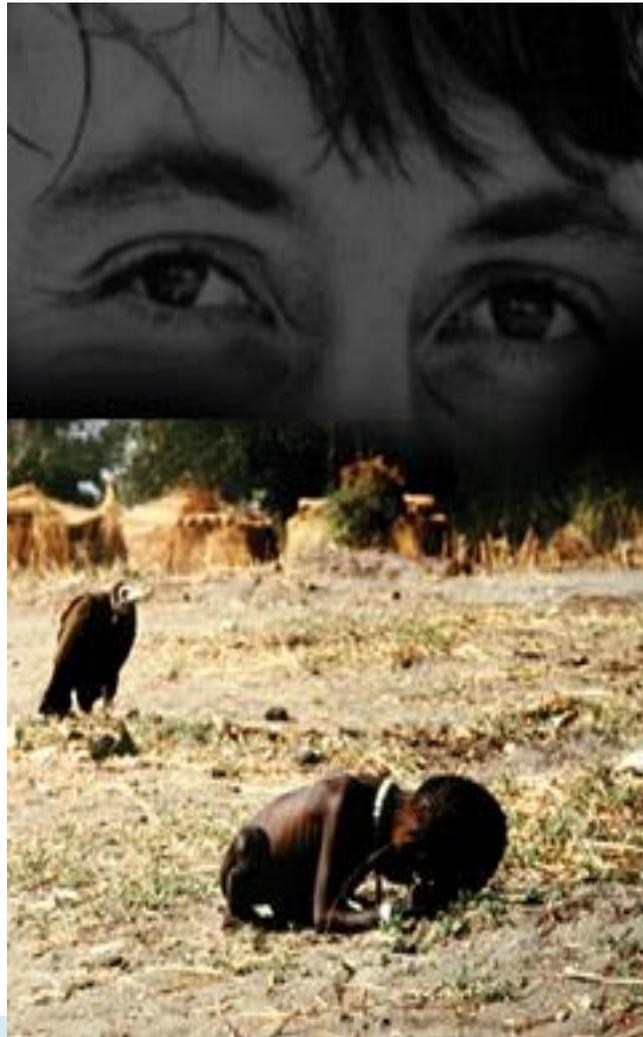
~ 15 to 25% of prison population
(a minority LIKELY to re-offend)

Recidivism rates for criminal psychopaths are higher than for nonpsychopathic offenders.

- ▶ 2X higher for non-violent offenders
 - ▶ 3X higher for violent offenders
- 

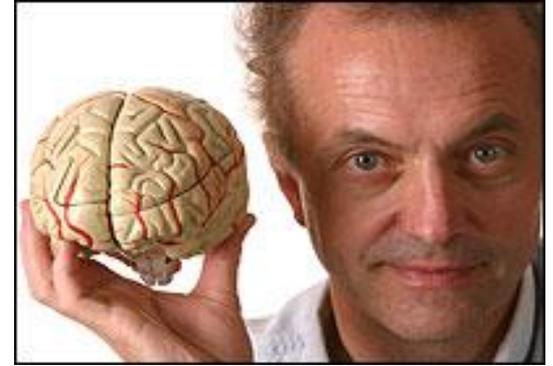


1994 Pulitzer Prize winner



THE DEATH OF
KEVIN CARTER:
CASUALTY OF THE
BANG BANG CLUB

Adrian Raine



- the “dangerous few”
- conceptualizes criminality as a disorder
 - in the same way as schizophrenia, etc.

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